

Elective in Software and Services

(Complementi di software e servizi per la società dell'informazione)

2008/09

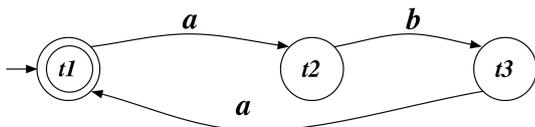
02/07/2009

Time to complete the assignment: 2 hours

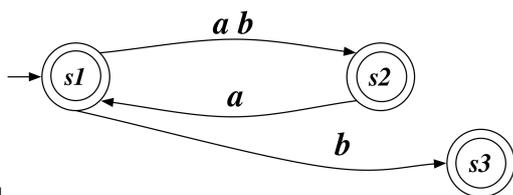
Part 1 (Composition Synthesis)

Given the following target **T** service and available services **A₁**, **A₂**, check whether a composition exists. If it does exist, produce the output relation of orchestrator generator. If not, single out the target state that cannot be simulated (ND-simulated), and propose a change to the available services so as to guarantee the composition.

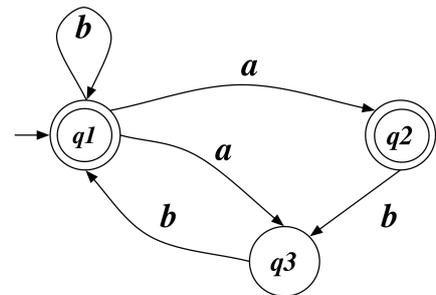
(Notice: to check for composition existence, build asynchronous product of available services and check simulation/ND-simulation as appropriate.)



T



A₁



A₂

Part 2 (Theoretical Question)

Prove that the following well-known theorem holds.

Theorem: Let s, t be two states of two finite transition systems. If there exists a bisimulation between s and t , then s and t satisfy (make true) the same formulas of HennessyMilner Logic.